

## LITERATURE CITED

- Chabreck, Robert H. 1960. Coastal marsh impoundment for ducks in Louisiana. Proc. Ann. Conf. S. E. Assoc. Fish and Game Comm., 14:24-29.
- Conrad, W. Brock, Jr. 1965. A study of the food habits of ducks wintering on the Lower Pee Dee and Waccamaw Rivers, Georgetown, South Carolina. M.S. Thesis, Auburn University, Auburn, Alabama. 113 typed pages.
- Cottam, Clarence. 1939. Food habits of North American diving ducks. Tech. Bull. No. 643. U.S.D.A. U. S. Government Printing Office, Washington, D. C. 140 pp.
- Janzen, Daniel H. 1964. Waterfowl tomorrow in the United States. Waterfowl Tomorrow. Jos. P. Linduska (Ed.), U. S. Government Printing Office, Washington, D. C. 770 pp.
- Martin, A. C. and F. M. Uhler. 1939. Food of game ducks in the United States and Canada. Tech. Bull. No. 634. U.S.D.A. U. S. Government Printing Office, Washington, D. C. 308 pp.
- McGilvrey, Frank B. 1964. Effects of elimination of alligatorweed on certain aquatic plants and the value of these plants as waterfowl foods. Proc. 18th Ann. Conf. S. E. Assoc. Fish and Game Comm. (In press.)
- McLendon, W. E., G. A. Crabb, M. Earl Carr, and F. S. Welsh. 1912. Soil survey of Georgetown County, South Carolina. U.S.D.A. U. S. Government Printing Office, Washington, D. C. 54 pp.
- Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell. 1964. Guide to the vascular flora of the Carolinas. The Book Exchange, University of North Carolina, Chapel Hill, North Carolina. 383 pp.
- Robinson, Benjamin Lincoln and Merritt Lyndon Fernald. 1908. Gray's new manual of botany. American Book Co., New York. 926 pp.
- Small, John Kunkel. 1933. Manual of the southeastern flora. Published by the author. New York. 1554 pp.

## TECHNIQUES AND METHODS USED TO CAPTURE AND TAG ALLIGATORS IN FLORIDA

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### INTRODUCTION

This paper by its very nature will compliment and in some cases contradict the findings of Mr. Robert H. Chabreck as reported in "Methods of Capturing, Marking and Sexing Alligators," presented at the Seventeenth Annual Conference (October 1963). It is not the intention of this paper to question the findings of Mr. Chabreck but to report techniques developed in Florida since 1959.

The study was conducted on the J. W. Corbett and Everglades Wildlife Management Areas in South Florida and the St. Marks National Refuge in North Florida. The primary objective was to develop basic and sound management techniques. In order to accomplish this, life history data must be collected. Of prime interest is information on movement, growth rates, and breeding habits. A reliable method of capturing alligators and tagging them for identification was needed. A practical use of the tags was to assist in the control of the large number of exhibit alligators in the state. These exhibits have proven to be a valuable aid in testing the durability of the various tagging methods.

The purpose of this paper is to report some of the capturing methods that have proven to be most satisfactory and report the success of the tagging techniques. The tags are by and large modifica-

tions of commercially produced products. The nature of the alligator's hide requires unique techniques for marking. The author hopes that the data presented in this paper will assist others involved with alligator investigations. It is realized that these techniques are not the utopia, but it is hoped they will serve as a stepping stone to the development of more advanced tagging methods.

### CAPTURING METHODS

Various methods have been tried in capturing alligators. These will be discussed individually along with their advantages and disadvantages. However, all methods were more successful at night.

Daylight capturing was limited to an occasional 'gator in shallow clear water. It was found that alligators that sink in clear water, shallow enough to be seen on the bottom can be easily captured. They apparently have a feeling of security and can be taken by almost any method. Alligator hunters claim that you can lift them from the bottom by placing a hand under the snout. If they are gently raised they will not struggle until their head breaks the surface of the water. The author has not tried this technique.

#### *Snare*

A snare similar to that described by Chabreck (1963) has been used with some success. The snares used in Florida are home made and are of trial and error. The best design has an outboard steering cable placed through a 6' section of ½-inch aluminum tubing. A loop is made at one end with clamps and a handle attached to the other. After the loop has been tightened around the alligator's neck the handle allows the hunter to take slack out of the line. It has been found that this reduces struggling and lessens the chance of injury. This method has also proven quite successful on those from 4 to 6 feet in length. The largest alligator the author has captured using this method has been eight feet in length. It is suspected that this technique might result in undetected injuries to the throat that could hinder normal feeding and cause delayed mortality.

#### *Dip Net*

A long-handle dip or landing net with a deep pocket has worked well with small alligators. A rule of thumb with regard to size is "total length of the alligator should not exceed the diameter of the hoop." An occasional larger specimen can be captured but not consistently. The best technique is to approach the side or back and dip from the tail end. As an alligator submerges he slides backward and then starts swimming away.

#### *Harpoon*

The harpoon has proven to be by far the most effective methods for capturing alligators from three to twelve feet. A big advantage is that the same "rig" can be used for capturing a three-foot or a twelve-foot alligator. The harpoon (Figure 1) consists of an 8/0 fish hook embedded in a four to five-inch length of tubing. About ¼ inch of the shaft behind the barb is left projecting from the tubing. A ring is attached in the front portion to accommodate a 25-foot section of nylon cord. The cord is attached to a gallon plastic bottle used as a float.

This capturing device is delivered by means of a 10 to 12-foot wooden pole with a spike on the end that holds the shaft. When the alligator is approached and within striking distance the harpoon point is embedded in the neck. The pole is pulled backward freeing the harpoon. The bottle is thrown into the water and the 'gator allowed to "run." After he begins to tire the bottle is retrieved and the line pulled in, this action will, in many cases cause the 'gator to make another "run." When he is finally exhausted and pulled to the surface a safety rope is slipped over the head. This reduces the possibility of losing him if he makes a sudden move. The alligator is then pulled to shore or alongside the boat where he is secured. In

almost all instances when the alligator is lifted into the boat he is fatigued and offers little resistance.

The harpoon point is removed by means of a small knife cut to free the barb. A large number of alligators have been captured with this technique without injury or fatality. The point of entry of the hook and the incision are so small that they are hardly noticeable. This technique does not produce the scratches and irritation resulting from capture with a snare. The only restraint is the bottle and the 'gator is allowed to travel almost where he desires until tired out.

The neck was mentioned as the desired point of entry for the harpoon. However, any location that can be penetrated by the hook past the barb is effective. The neck is the easiest place to locate and hit when the alligator is resting on the surface with his head exposed.

### STALKING

The art of stalking an alligator that has been frightened by a light and human can become quite difficult. The author is of the opinion that an alligator that has once been captured by the use of a light and handled by man will develop a certain amount of light shyness. It is not known just how long this will effect his habits and movements. This reaction to light becomes evident when a pool is hunted intensely. After considerable tagging, numerous alligators are spotted that do not allow the hunter to get within capturing distance. They merely sink and move into vegetation and are not seen again.

Night conditions have a very definite effect on capture success. It has been found that on clear dark nights with little or no wind will be most successful. Heat lighting even in the distance will have a decided effect on an alligator's reaction to a spotlight.

The method of approach varies with the depth of the water. In areas that must be hunted from a boat the final approach must be quiet; however, a small outboard does not seem to disturb them. Large alligators have a feeling of insecurity if they are approached in shallow water but will hold when they move to deeper water. Therefore, if they are allowed to move into deeper water they will hold better. In shallow water with a firm sandy pond or lake bottom wading can be most effective. A boat or jeep can be used for location, but the final approach should be made on foot. The alligator will usually hold unless the hunter makes waves during the approach. Disturbances in the water will cause the 'gator to move off. Hunting in shallow ponds will produce many small and an occasional medium-sized alligator, but larger specimens prefer the deeper pools and canals.

### MARKING AND TAGGING

The necessity for permanently marking specimens for identification is evident to anyone involved in animal behavior studies. Mr. Chabreck (1963) in Louisiana reported using toe clipping, removing dorsal tail scutes, metal tags in the tail and streamers. In Florida most of these have been tried with varying degrees of success. However, none of these were completely satisfactory. The following is a discussion of the tags currently used for marking.

#### *Neck Tags*

A system was devised which involved attaching a nylon tag through a neck scute by means of a rivet. The tag is the same type used on the ears of swine and sheep. The trade name is Roto-tag distributed by the National Agricultural Chemical Company. It is 1½ inches long by ¾ inches wide and consists of a male and female half. The shank is cut off and a 1/8-inch hole drilled in the tag for attachment with a rivet.

The tag is attached by means of an aluminum rivet ½-inch long. The Pop-Rivet (United Shoe Machinery Corporation) can be expanded by means of a "Pop" Rivetool (PRG410). A hand drill with a 1/8-inch bit is used to drill a hole in the neck scute. The tag is

placed in the rivet, the rivet shaft is then inserted in the tool. The rivet point is placed in the hole in the neck scute and the rivet expanded.

This is a painless operation to the alligator. The drilling in the neck scute does not cause any apparent pain unless the bit slips when the scute is penetrated. The tag is easily visible and is protected by the keel of the scute. The size alligators that this type can be used on depends upon the toughness and thickness of the scute. Very little success has been experienced with alligators under five feet in length.

Nylon tags were first used about one year ago on exhibit 'gators. To date they appear to be holding quite well and have not caused any irritation. It is hoped that the healing on the underside of the scute will aid in making this marking technique permanent.

#### *Tail Tags*

The two halves of the Roto-tag are used to mark medium size alligators (4-6 feet) through the dorsal tail scutes.

The limiting factor to this method is the thickness of the scutes. The tag will accommodate  $\frac{3}{8}$  of an inch in thickness between the two halves. It is a self-locking tag by means of a collar on the male half. A hole must be punched in the scute with an ice pick or punch and the tag clamped with pliers.

A different type tail tag is used on very small alligators. This consists of a fish tag attached by means of coated leader material and a metal sleeve. This is attached through the dorsal tail scutes and a loop is formed with the leader material. The size of the loop should allow ample room for growth. The diameter of the leader material used is .015 inches with number two sleeves available from Herter's, Inc.

#### *Branding*

A hot branding iron is used to burn "GFC" in  $\frac{1}{2}$  inch letters on the light colored ventral surface of alligators. This is used as a check on the durability of the tagging methods and to discourage poaching. Brands have been placed on the lateral surface of the tail and abdomen but due to the dark color are not readily apparent. A brown brand on the light ventral scales is readily discernable to the most inexperienced observer.

### SUMMARY

The purpose of this progress report is to present the methods and techniques found to be most effective in the marking and capturing of alligators in Florida. The techniques developed have not been tested under field conditions long enough for conclusive findings.

The most effective method of live capturing alligators is the harpoon. This technique has been used successfully for a number of years. A dip net is used to capture small alligators.

Nylon tags attached in the neck by means of "Pop" rivets is used on alligators over five feet long, while tags attached through the tail are used on 'gators under five feet in length.

Future research will determine what tagging and capturing methods presently in use are the best and may result in the discovery of still more adequate techniques.

### LITERATURE CITED

Chabreck, Robert H. 1963. Methods of capturing, marking and sexing alligators. Seventeenth Annual Conference Southeastern Association of Game and Fish Commissioners, 17:47-50.

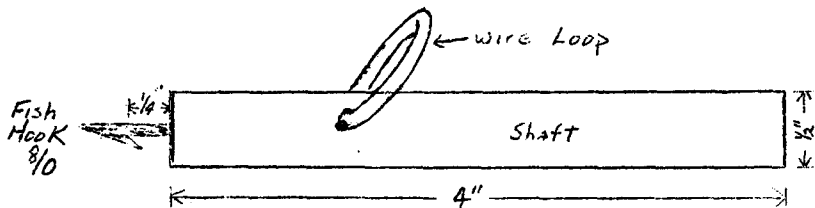


Figure 1. Diagram of harpoon showing hook, shaft and loop.